Sugar Cube Rock Cycle

Grade 8 Geology

Standard**: Earth Science** – Students will gain an understanding of the Earth’s process – the rock cycle and be familiar with the changes that can happen within the cycle.

Students will demonstrate how rocks change through processes like weathering and erosion.

\*Begin to understand the idea of conservation of mass with physical or chemical changes.

**Procedure:**

1. Obtain 2 sugar cubes, a container with lid, and a paper towel.

2. Place a paper towel on your lab station.

3. Observe the shape of the 2 sugar cubes and draw a detailed picture in the chart.

4. Find the mass of the empty container and cubes and record below.

5. Place the 2 sugar cubes in the container, put on the lid, and briskly shake the container for 1 minute.

6. Put the 2 sugar cubes onto a piece of black paper and sketch a detailed picture of their shapes in the chart below. Use a hand lens.

7. Find the mass of the two cubes and record below.

8. Pour the worn off pieces and powder of the sugar cube onto another paper. (Tap the side of the container to make sure all the powder is removed)

9. Place the 2 sugar cubes back into the container, put on the lid, and briskly shake the container for 2 minutes.

10. Remove the sugar cubes and sketch a detailed picture of their shapes in the square below.

11. Find the mass of the sugar cubes and record below.

12. Pour the worn off pieces and powder onto your paper towel.

13. Repeat this process 2 more times increasing the shaking time by 1 minute each time.

Word Bank

Weathering cooling metamorphic

Erosion compaction and cementation

Heat and pressure sedimentary deposition

Melting igneous

**SKETCHES/MASS CHART**

|  |  |  |
| --- | --- | --- |
| Drawing of sugar cubes before shaking  Mass (g) | Drawing of both sugar cubes after shaking for one minute.  Mass (g) | Drawing of both sugar cubes after shaking for 2 more minutes.  Mass (g) |
| Drawing of both sugar cubes after shaking for 3 more minutes minute.  Mass (g) | Drawing of both sugar cubes after shaking for 4 more minutes.  Mass (g) |

1. Now what kind of rock do you think the original sugar cube represents?
2. What process did the shaking represent?

**PROCEDURE #2**

1. Pour the sugar into a pile in the center of a piece of foil. What does the represent?
2. Fold up the sides of the foil so the sugar won’t fall out.
3. Place the boat onto a warm hot plate. What do you observe happens over 1-2 minutes?
4. Remove the foil boat from the hot plate and place on the lab station. What do you observe happens as the sugar cools?
5. What process do you think this represents?
6. Let the sugar cool completely. What is the sugar like now? What kind of rock do you think this represents now?
7. Take the cooled sugar out of the foil and break into pieces. What process is this?
8. Take the mass of the sugar pieces again. \_\_\_\_\_\_\_\_\_\_\_\_\_g\_\_
9. Did it change or not? How might your explain this? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. What would you need to do in order to turn the pieces back into a sugar cube?

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